

Claims

What is claimed is:

- 5 1) A communication system comprising:
 - a) a remote communication device;
 - b) a resident web server on said remote communication device;
 - c) a resident browser on said remote communication device; and
 - d) a data transfer protocol for said remote communication device to transfer data
- 10 between said resident web server and a non-resident web server.
- 2) The communication system of claim 1 further comprising an application executed from the resident web server by the resident browser.
- 3) The communication system of claim 2 further comprising:
 - a) a database resident on said remote communication device; and
 - 15 b) a data calling protocol for calling data from said database to said application.
- 4) The communication system of claim 2 wherein said application is selected from the group consisting of an active server page application and a java server page application.
- 5) The communication system of claim 1 wherein said transfer protocol includes the transfer of data in and out of a firewall protecting said non-resident web server.
- 20 6) The communication system of claim 1 wherein said transfer protocol includes the transfer of data via simple object access protocol.
- 7) The communication system of claim 1 wherein said resident browser includes a resident browser modification control to limit a user's access to one or more resident browser functions.
- 25 8) The communication system of claim 1 wherein said remote communication device includes a hardware interface for an application running on said to remote communication

device to communicate with one or more hardware peripherals connected to the remote communication device.

9) The communication system of claim 1 wherein said resident web server includes:

- a) a cache for caching a post request when said remote communication device is disconnected from the non-resident web server; and
- b) an asynchronous processor for posting a cached request to said non-resident web server when said remote communication device is reconnected to the non-resident web server.

10) The communication system of claim 1 wherein said remote communication device includes database binding means for calling extensible markup language data to an application running on said remote communication device.

11) The communication system of claim 7 further comprising:

- a) a hardware detector to detect a hardware peripheral connected to said remote communication device; and
- b) at least one peripheral identification parameter sent from said hardware detector to said non-resident web server to identify the peripheral.

12) The communication system of claim 11 further comprising a hardware extension deployer to deploy one or more hardware extensions from the non-resident web server to the remote communication device.

13) The communication system of claim 1 further comprising a file deployer to deploy one or more files to said remote communication device from said non-resident web server.

14) The communication system of claim 13 wherein said one or more files includes an extractable first file packaged in a second file.

15) The communication system of claim 14 wherein said second file is a CABinet file.

16) The communication system of claim 1 further comprising a version controller to update an application resident on said remote communication device with a predetermined version of said application from the non-resident web server.

17) The communication system of claim 1 further comprising a security controller to prevent unauthorized access to said resident web server and said non-resident web server.

18) A method for communicating asynchronously with a network comprising:

- a) providing a remote communication device for communicating with a network;
- b) providing a resident browser in said remote communication device;
- c) providing a resident web server in said remote communication device;

d) caching a transaction from said resident browser destined for said network as an asynchronous post object in said remote communication device if said remote communication device is not connected to the network; and

e) posting said asynchronous post object to the network from said resident web server when said remote communication device is connected to the network.

19) The method of claim 18 further comprising determining the connection status of said remote communication device before caching a transaction as an asynchronous post object in said communication device.

20) The method of claim 18 wherein posting said asynchronous post object to the network is initiated by a manual trigger.

21) The method of claim 18 wherein posting said asynchronous post object to the network is initiated by a time interval trigger.

22) The method of claim 18 wherein posting said asynchronous post object to the network is initiated when a second transaction is received by said resident web server from said resident browser.

23) The method of claim 18 wherein said transaction is an extensible markup language transaction.

24) The method of claim 18 further comprising adding a simple object access protocol envelope to said asynchronous post object prior to posting said asynchronous post object to the network.

25) The method of claim 24 wherein said posting said asynchronous post object to the network includes hypertext transport protocol delivery of said asynchronous post object to the network.

26) The method of any one of claims 18 through 25, wherein said transaction is initiated from an application running from said resident web server in said resident browser.

27) A method for executing a transaction on a remote communication device comprising:

- a) providing a remote communication device with a resident browser;
- b) providing the remote communication device with a resident web server; and
- c) executing an application from said resident web server with said resident browser.

28) The method of claim 27 wherein said remote communication device is a handheld device with a microprocessor.

29) The method of claim 28 wherein said remote communication device is a wireless device.

30) The method of claim 27 wherein said application is an active server page application or java server page application.

31) The method of claim 30 wherein said remote communication device is a handheld device with a microprocessor.

32) The method of claim 31 wherein said remote communication device is a wireless device.

33) The method of claim 27 further comprising transferring data between said application and a resident database resident on said remote communication device.

34) The method of claim 30 further comprising transferring data between said application and a resident database resident on said remote communication device.

35) The method of claim 34 wherein said data is extensible markup language data.

36) A method for communicating data from a remote communication device to a web server

5 comprising:

a) enveloping data from a remote communication device in a simple object access protocol envelope; and

b) transferring said data in said envelope to said web server.

37) The method of claim 36 wherein said web server is a non-resident web server.

10 38) The method of claim 37 wherein transferring said data in said envelope includes transfer from a resident web server on said remote communication device to the non-resident web server.

39) The method of claim 38 wherein transferring said data in said envelope includes a
15 hypertext transfer protocol connection between a said resident web server and the non-resident web server.

40) The method of claim 39 wherein said remote communication device is a handheld device with a microprocessor.

41) The method of claim 40 wherein said device is wireless.

42) A method for persistent storage of application data for an application running on a remote
20 communication device comprising:

a) running the application on a remote communication device;

b) storing session data received by the application as a session object; and

c) storing application data associated with the application as an application object.

43) The method of claim 42 wherein said application is executed by a resident browser
25 resident in the remote communication device.

44) The method of claim 43 wherein said application is selected from the group consisting of an active server page application resident on said remote communication device and a java server page application resident on said remote communication device.

45) The method of claim 44 wherein the application is a first application, and further comprising:

- a) switching use of the first application to a second application; and
- b) resuming use of the first application with any data retained as said session object and said application object remaining intact.

46) The method of claim 42 wherein the application is a first application, and further comprising:

- a) switching use of the first application to a second application; and
- b) resuming use of the first application with any data retained as said session object and said application object remaining intact.

47) The method of claim 42 wherein said remote communication device is handheld device with a microprocessor.

48) The method of claim 47 wherein said remote communication device is wireless.

49) A method for deploying a file to a handheld communication device comprising:

- a) determining a first file to be transferred to the handheld communication device;
- b) packaging said first file as an extractable file in a second file;
- c) sending said second file containing said extractable file to said handheld communication device; and
- d) extracting said first file from said second file on said handheld communication device.

50) The method of claim 49 wherein the handheld communication device includes a resident browser for receiving said second file.

51) The method of claim 50 wherein said second file is CABinet file.

52) The method of claim 49 wherein said first file is determined by one or more parameters associated with said handheld communication device.

53) The method of claim 52 wherein said handheld communication device is wireless.

54) The method of claim 52 wherein said one or more parameters is selected from the group consisting of the type of the remote communication device, the operating system of the remote communication device, the type of hardware peripherals connecting to the remote communication device, the user of the remote communication device, the type of microprocessor in the remote communication device, and the version of at least one application on said remote communication device.

55) A method for controlling access to a web server on a remote communication device comprising:

- a) providing a remote communication device with a resident web server; and
- b) closing access to unauthorized non-resident requests to said resident web server.

56) The method of claim 55 further comprising allowing an external request to said resident web server only if said external request originates from a predetermined non-resident web server.

57) A method for generating an application for use on a handheld communication device with a microprocessor comprising:

- a) providing a development template for a web application creation tool to create an application for use on a handheld communication device with a microprocessor; and
- b) extending the capabilities of said creation tool to accommodate said template with one or more plug-ins.

58) The method of claim 57 wherein said application is selected from the group consisting of an active server page application and a java server page application.

